

Application No.: 10/026,171
Response dated: August 9, 2007
Reply to Office Action of: April 9, 2007

AUG 09 2007**REMARKS**

Reconsideration of the application is respectfully requested.

Claims now before the Examiner are 1, 3, 5-10, 14-22 and 24-38. New Claims 36-38 have been added to a particular embodiment of the invention. For example, new Claim 36 recites the limitation of heating the recited reaction product to a temperature of from 80°C to 100°C for a time period of about 30 minutes to about 3 hours. Claim 36 further limits step (b) of the instantly claimed method such that the reaction product of (a) is combined with a carrier, the carrier heated to 30-75°C, wherein the combined reaction product of (a) and the carrier are heated at 30-75°C for a time period of about 30 minutes to about 3 hours, to form the recited supported catalyst composition. Support for these amendments may be found, for example, at Page 16, in numbered paragraph [0061], and in the examples. Thus, Applicants respectfully submit that no new matter has been added

Rejections Under 35 USC § 103

Claims 1, 3, 5-10, 14-22, and 24-35 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over either of WO 96/35729 (Razavi I) or U.S. 5,914,289 (Razavi II). The Office Action has cited the reasons of record given in paragraph 4 of the Office Action dated as mailed November 14, 2006.

Paragraph 4 of the Office Action dated as mailed November 14, 2006 references the reasons of record given in paragraph 4 of the Office Action dated as mailed July 19, 2006;

Paragraph 4 of the Office Action dated as mailed July 19, 2006 references the reasons of record given in paragraph 6 of the Office Action dated as mailed March 9, 2006; and

Paragraph 6 of the Office Action dated as mailed March 9, 2006 rejects the claims for the reasons of record given in the Office Action dated as mailed June 7, 2005, and also notes that although the claims are not clearly anticipated by Razavi I and Razavi II, they do appear to be *prima facie* obvious over these two references,

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and that the lesser fouling found in the executed Rule 132 declaration appears to have been a motivation for both Razavi references.

The Office Action dated as mailed June 7, 2005 rejects the claims for the reasons of record given in the Office Action dated as mailed December 10, 2004, and also notes that both the abstracts of Razavi I and II may be read to mean that the separate step of combining the metallocene with the activator as well as the combination of the support with the catalyst composition is carried out at the higher temperature, i.e., 85-130°C. The Office Action also notes that both Razavi I and II disclose that their objectives are to obtain catalysts having higher productivity with lower fouling.

The Office Action dated as mailed December 10, 2004 rejects the claims under 35 U.S.C. §103(a) as being unpatentable over each of Razavi I and Razavi II. According to the Office Action, upon which the subsequent rejections are based, reacting the metallocene or metallocene/activator combination with the carrier at an elevated temperature necessarily entails the metallocene or metallocene/activator combination being at that elevated temperature during the combining, hence immediately before the combining it would seem they must be at that elevated temperature. The December 10, 2004 Office Action notes that the claims (at that time) did not require the combining of the metallocene and/or the activator with the carrier itself take place at an elevated temperature.

The December 10, 2004 Office Action alleges that Razavi I and II disclose heating the metallocene and cocatalyst to one temperature, followed by a separate step of combining the mixture with a carrier at another temperature, the other temperature generally overlapping with the temperatures recited in the present claims.

In response to the Office Action dated December 10, 2004, Applicants noted that both Razavi I and II combine the metallocene and the activator at between 15 and 50°C, and that the instantly claimed invention recites a temperature outside of this range (i.e., 60-125°C.)

In response to the Office dated June 2, 2005, Applicants submitted an Amendment dated February 23, 2006, wherein Claim 1 was amended to further

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clarify the metallocene catalyst. Applicants also submitted a Rule 132 Declaration wherein the inventor prepared catalyst according to the instantly claimed invention, and according to Razavi I and II. Applicants then directly compared the results of polymerization of the instant catalyst to that disclosed by Razavi I and II. However, as the instant Office Action points out, the Declaration of February 23, 2006 skips Page 2. Applicants assert that this was an inadvertent error in the transmission of the document, and was committed without deceptive intent.¹ However, Applicants' presently claimed invention provides for an improvement over the cited prior art.

Accordingly, the instant Office Action rejects Applicants' presently claimed invention consistent with the reasons recited in the Office Action dated December 10, 2004. Claim 1, as currently amended, recites the following steps:

(a) first heating a composition comprising a metallocene catalyst compound and an activator to a temperature of from 75°C to 125°C,

wherein said metallocene catalyst compound...; and

(b) then combining the resulting composition of step (a) with a carrier, said carrier heated to 30-75°C; wherein the composition of step (a) is at a temperature of from 75°C to 125°C and said carrier is at a temperature of 30-75°C when the composition of step (a) and the carrier are combined.

Accordingly, Applicants' presently claimed invention requires the catalyst and the activator to first be heated above 60°C (above 75°C for Claim 1), prior to being combined with the carrier which has been heated to from 30 to 75°C. This is in contrast to Razavi I and II, wherein the catalyst and the activator are combined at a temperature from 15 to 50°C.

In the Instant Office Action dated April 9, 2007, the rejection of Applicants' presently claimed invention is justified in view of the Abstract of Razavi I and II. The abstract of Razavi I recites:

¹ Applicants are in the process of obtaining newly executed Declarations including page 2 and will provide them shortly in a supplemental response.

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“A process for the preparation of supported metallocene-alumoxane catalysts comprising the steps of: a) reacting a metallocene with an alumoxane at a temperature comprised between 15 and 50°C, b) recovering a mixture comprising an alkylmetallocenium cation and an anionic alumoxane oligomer, c) reacting said mixture with a support, and d) recovering a supported metallocene-alumoxane catalyst as a dry solid, the reaction with the support being carried out at a temperature comprised between 85°C and 110°C, preferably between 90 and 130°C, and their use for the polymerization or copolymerization of olefins.”

(Razavi I, Abstract.)

Accordingly, the Abstract of Razavi I fails to disclose or suggest Applicants' recited step of heating a composition comprising a metallocene catalyst compound and an activator to a temperature of from 60°C to 125°C (75°C to 125°C for Claim 1.)

The abstract of Razavi II recites:

“The present invention relates to the production of high density polyethylene homopolymers or copolymers having a broad and monomodal molecular weight distribution wherein the polymerization process is conducted in the presence of supported metallocene-alumoxane catalysts wherein the metallocene is bridged, comprises at least a hydrogenated indenyl or fluorenyl and a metal M which may be Ti, Zr or Hf, wherein a plurality of conformers of the metallocene are formed and isolated on the support by reaction of the metallocene with the alumoxane and depositing the product formed on the support at a temperature in the range 85°C to 110°C.”

(Razavi II, Abstract, emphasis added.)

Razavi II thus also fails to disclose or suggest Applicants' recited step of heating a composition comprising a metallocene catalyst compound and an activator to a temperature of from 60°C to 125°C. Accordingly, Applicants' presently claimed

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invention is both novel and non-obvious over the cited prior art. Removal of the rejection is respectfully requested.

The Office Action also maintains that the temperature differences in the step of combining the catalyst and the activator between Razavi I and II (i.e., 15 – 50°C) and Applicants' presently claimed invention (i.e., 60-125°C) amount to mere optimization of a results effective variable and as such, the presently claimed invention is rendered obvious in view of Razavi I and/or II.

Regarding the temperature at which the metallocene catalyst and the activator are contacted, Razavi I merely discloses:

“The reaction between the metallocene and the alumoxane (step a) is a multi-step equilibrium type reaction involving mono- and di-alkylation of the metallocene, mono-, di- or multi- metallic species and finally abstraction of an alkyl group, and formation of active cationic species. The reaction between the metallocene and the alumoxane is performed at a temperature comprised between 15 and 50°C, preferably about 25°C. The reaction is usually conducted in the presence of a solvent, preferably toluene.”

(Razavi I, page 7, lines 3-12)

Razavi II recites the identical disclosure at Col. 4, lines 31-35.

Both Razavi I and II fail to disclose any other mention of the temperature at which the catalyst and the activator are reacted prior to combination with the support. Thus, there is no motivation or teaching to do so.

“There must be a suggestion or teaching that the claimed novel form of the prior art compound could or should be prepared.” In *re Cofer* (CCPA 1966) 354 F.2d 664, 148 USPQ 268, cited with approval in the unpublished decision of the CAFC in *Bristol-Myers Co. v. U.S. ITC* (CAFC 1989) [15 PQ2d 12581, and a “reasonable expectation of success.” *Frifsch v. Lin* (BPAI 1991) 21 PQ2d 1739.

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Arguing that mere routine experimentation was involved overlooks the second sentence of 35 USC §103. In *re Saether*(CCPA 1974) 492 F.2d 849,181 USPQ 36. As is well established, “the issue is whether the experimentation is within the teachings of the prior art” (see In *re Wymouth et al.* (CCPA 1974) 499 F.2d 1273, 182 USPQ 290).

It has also been held that the fact that the prior art does not lead one skilled in the art to expect the process used to produce the claimed product would fail does not establish obviousness. In *re Dow Chemical Co.* (CAFC 1988) 837 F.2d 469, 5 PQ2d 1529.

In a more recent decision by the Supreme Court, the Court has warned against a rigid adherence the above described “teaching, suggestion, motivation” (TSM) test. According to the Court, “when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103” *KSR International Co. v. Teleflex Inc. et al.*, No. 04-1350, slip op. (U.S. Apr. 30, 2007).

However, increasing the temperature from at most 50°C to a minimum temperature of at least 60°C cannot reasonably be a results effective variable found within the “common sense” of one skilled in the art of metallocene catalyst, especially when one considers the unpredictable nature of catalysis.

It has long been established that catalysis is generally considered unpredictable merely from the chemical nature of the catalyst. *Corona Co. v. Dovan* (USSC 1928) 276 US 358, 369. Catalytic effects are not ordinarily predictable with certainty. In *re Doumanj et al.* (CCPA 1960) 281 F.2d 215, 126 USPQ 408. However, the known similarity between two materials may suggest the probability of the suitability of one material for a particular purpose when the other is known to be useful for that purpose. In *re West* (CCPA 1947) 160 F.2d 570, 73 USPQ 227. The effect of a modification of one prior art catalytic process in a manner employed in

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another prior art process which employs a different catalyst was held unpredictable.
Ex par/e Berger et al. (POBA 1952) 108 USPQ 236.

Accordingly, no reasonable conclusion may be drawn in which Applicants' presently claimed invention is rendered obvious over Razavi I and/or Razavi II. Removal of the rejection is respectfully requested.

Claims 1, 3, 5,-10, 14-22 and 24-35 stand Rejected under 35 USC § 103(a) as Obvious over (Uwai).

As the Office Action dated as mailed March 9, 2006 admits at paragraph 8, Uwai fails to disclose heating the activated metallocene to a temperature above room temperature before reacting it with a carrier at a temperature above room temperature. The Office Action maintains that it would have been obvious to apply this skill of heating to the disclosure of Uwai to arrive at Applicants' presently claimed invention. Accordingly, in concert with the rejections in view of Razavi I and II, the Office Action has rejected Applicants' presently claimed invention utilizing an obvious to try standard. For the reasons cited above, and in view of the Office Actions admission that Uwai fails to disclose or suggest all the limitations recited by Applicants, Uwai cannot reasonably be found to render Applicants' presently claimed invention obvious. Removal of the rejection is respectfully requested.

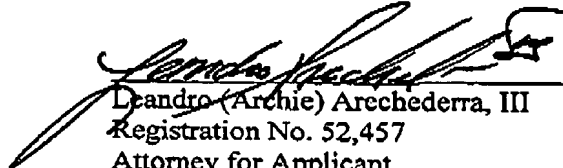
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Accordingly, Applicants respectfully request the rejection of the claims be removed, and the claims, as amended, be passed to allowance. Reconsideration and allowance is respectfully requested.

Respectfully submitted,

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